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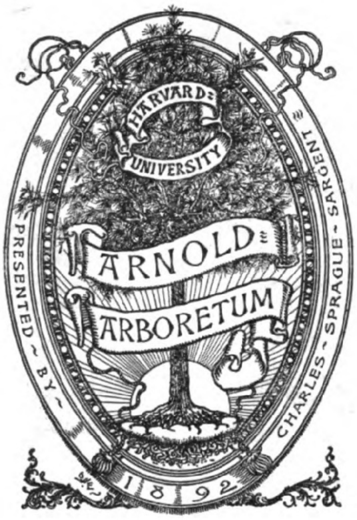

HARVARD UNIVERSITY
ARNOLD ARBORETUM
PRESENTED BY CHARLES SPRAGUE SARGENT
1892

COMMERCIAL. No. 1 (1896).

REPORT

ON

FORMOSA,

BY

MR. N. PERKINS,

ASSISTANT IN HER MAJESTY'S CONSULAR SERVICE.

[In continuation of "Commercial No. 11 (1893)": C.—7104.]

Presented to both Houses of Parliament by Command of Her Majesty.
February 1896.

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE
BY HARRISON AND SONS, ST. MARTIN'S LANE,
PRINTERS IN ORDINARY TO HER MAJESTY.

And to be purchased, either directly or through any Bookseller, from
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Report on Formosa, by Mr. N. Perkins, Assistant in Her Majesty's Consular Service.

[In continuation of "Commercial No. 11 (1893)": C.—7104.]

No. 1.

Sir N. O'Conor to the Earl of Kimberley.—(*Received August* 8.)

(No. 238.)

My Lord, *Peking, June* 25, 1895.

I HAVE the honour to transmit herewith to your Lordship a copy of a very interesting and, in many respects—more particularly in regard to the flora of the country, from the pen of Mr. Augustine Henry, of the Imperial Maritime Customs Service—an unusually complete Report on Formosa, which has been prepared with much labour by Mr. Perkins, Assistant in Her Majesty's Consular Service, who is at present stationed at Anping.

I have, &c.
(Signed) N. R. O'CONOR.

Inclosure in No. 1.

REPORT.

Formosa: Outline description of the Island.

Origin of name.
Geographical position.

TAIWAN, which is the Chinese name of the large island known to foreigners as Formosa—the latter name being due to the Portuguese who settled in Kelung, on the north-east coast, at the end of the sixteenth century—lies about 90 miles from the coast of the Fu-djien Province, and about 150 miles from Amoy, between 21° 53′ and 25° 16′ north latitude, and 120° 15′ and 122° 5′ east longitude.

Its maximum length is about 235 miles, and the greatest breadth about 90 miles.

Population.

The area has been calculated at about 15,000 square miles, and the total population at 2,000,000, of which 750,000 is usually given for the Tainan district.

The aborigines have been estimated at 200,000, but reliable data are absolutely wanting in this latter case.

Volcanic nature.

Formosa forms a link in the volcanic chain which, commencing in New Guinea in the south, and passing north to the Aleutian Islands, constitutes the eastern escarpment of the former Malayo-Chinese continent.

Thus, whereas the waters in the Chinese seas are everywhere shallow, directly the east coast of Formosa is passed, deep water is reached.

Natural Divisions.

Central axial range, north and south.
Lofty peaks.

The backbone of the island extending north and south is formed by a range of densely-wooded mountains, containing several high peaks, of which little is known. The two highest are known as Mount Morrison and Mount Sylvia; the former reaches a height of nearly 13,000 feet.

East side: mountainous.

Eastward of the range the country is of a mountainous nature, and bristles on the Pacific with the highest cliffs in the world, in some cases presenting almost a sheer descent of many thousand feet.

On the west side: low hills and alluvial plain.

On the west, between the mountains and the plain, lies a small range of low barren clay hills.

The western side of the island consists of one broad alluvial plain stretching from north to south, with water-channels dividing it here and there, and terminating in sand-banks and muddy spits.

Rapid gain of the land on the sea.

The most striking feature of this side of the island is the rapidity with which the land is gaining on the sea.

An old Dutch picture, of the date of their occupation, shows Fort Zelandia with the richly-laden argosies of the Dutch East Indian Company, drawing many feet of water, anchored close to the old fort in a position now over a mile from the sea. A still more recent example of this unceasing process is furnished by the development of Fort Zelandia into the Anpíng Settlement, situate entirely on land recovered from the sea, with a miniature Zuyder Zee lying in front of it, and so rapid has been the encroachment of the land that the British Consulate now stands where war-junks used to anchor, and mud-banks have formed a spit and shallow bar (which is rapidly becoming still shallower) half-a-mile without the former anchorage for gun-boats, all this being within the memory of present residents.

This gradual elevation of the western seaboard is partly due to the large amount of sediment brought down by rivers from the mountains. The rainfall during the north-east monsoon being exceedingly heavy in the north central and east portions of the island, as the rain clouds meeting the Kuro-siwo take up the excess of watery vapour, and this coming in contact with the mountain barrier, condenses into rain of extraordinary violence, rendering travel in the interior impossible during some parts of the year.

Another cause of the gradual extension of the coast towards the west is in the strong winds, prevalent during the north-east monsoons, bearing clouds of sand with them, and at the same time by their direction preventing the deposits of the rivers being carried clear out to sea.

Scenery.

The scenery of the west coast, speaking generally, offers no striking features of interest to those in search of the picturesque.

It is, however, not difficult to explain the attraction which the south-west coast of the island undoubtedly had for the Dutch, for seen from shipboard the view which spreads itself before the eye of the new arrival is, in the neighbourhood of Fort Zelandia, strongly suggestive of Holland.

Towards the north-west the scenery gradually improves, and partakes more of the nature of the mountain scenery running down the centre and east of the island. Those persons who are well acquainted with the mountain districts unite in giving glowing and enthusiastic descriptions of the rugged interior, lake and river source, rock and crag, stern precipice and undulating valley, tractless deeps of forest, containing trees of innumerable species, and silent except for the hum of insects and gay-plumaged birds, and the occasional footfall of the aborigines, or the scarce wilder denizens of the forest, the deer and the boar.

Climate.

The Formosan seas are well known for their typhoons, chiefly occurring between June and October.

The velocity and violence of the winds during the height of these storms is almost incredible, and from their rotatory course they test to the utmost the skill of the builder, whether of house or ship.

The rain is swept in steam-like masses along the ground, and the rivers appear to be lifted bodily from their beds.

These tremendous storms cause the want of harbours along the coast to be more severely felt. Tainan, however, seldom feels the full force of typhoons, which usually break off east or west at South Cape.

Earthquakes are also of frequent occurrence, and it is always considered an ominous sign when a long period elapses without some shock being felt. There is a record of a severe shock in 1782, which is said to have effected a considerable change in the outline of the coast. A frightful convulsion occurred in 1862, and more recently violent shocks in 1881, 1882, and 1892.

From what has been said above it will be seen that the island tends, however slowly, to reunite itself with the mainland, from which its severance at a remote period was probably due to some volcanic convulsion.

The climate of the island is considerably more equable than that of the nearest mainland, and slightly more humid. In summer the thermometer seldom exceeds

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90 degrees, or in the south falls below 80 degrees. The winter temperature ranges from 70 to 45 degrees, and during north-east gales has been known to fall below 40 degrees.

The mean temperature of the port is about 76 degrees for the whole year—about 72 degrees for the seven cool months, and about 83 degrees for the remainder. In summer there is scarcely a cooler place in China. Residents, both European and Chinese, suffer greatly from malarial fevers of various kinds, and the mortality amongst settlers in the south, and the troops sent to subjugate the savages on the east and south coasts, has been excessive. There are also other diseases common amongst the natives, notably of the eye. On the other hand, the climate of the south has been advanced as beneficial to consumptive patients. The bright and glorious sky, and the refreshing northerly breezes, which blow constantly from October to April, enable foreign inhabitants to make a better fight against the malaria, which is even more dangerous in the cool season than in summer, but the natives die in great numbers at this time of year.

If, however, the island only came to be opened up, a health resort, established at a certain height on the hills, would undoubtedly, barring the humidity, have the advantage of a good climate for the greater part of the year.

Population.

The population is peculiar, and somewhat interesting, and may be roughly divided into four elements:—

1. Independent savages.
2. Pepohuans (partially civilized savages) and cross-breeds.
3. Hakka immigrants from the mainland.
4. Pure Chinese immigrants.

Roughly speaking, the mountains are inhabited by the aborigines, and the plains by the Chinese.

These aborigines are divided into a number of different tribes, each under their own head, and speak languages springing probably from one common stock, though with considerable local variations; but few foreigners have ever spent any considerable time amongst them, and fewer still have learnt any of their dialects, and it is therefore impossible to say what influence the immigration which has certainly taken place at different times and from different places may have had in differentiating one tribe from another.*

On philological and other 'ogical grounds these people are generally reckoned as belonging to the Malayan stock. M. de Lacouperie also suggests a connection with the pre-Chinese inhabitants of the mainland, and one tribe in the north appears to own a Japanese origin.

Taking the aborigines, then, as being on the whole of Malayan origin, many of the present differences amongst them must be ascribed to the degree in which they have come in contact with Chinese civilization.

When the Chinese came into possession of the island they found the level country inhabited by various tribes in different stages of human progress. To these they gave the name of Pepohuans, or level plain aborigines, and, whilst they gradually dispossessed them of their lands, and drove them either to the low hills bordering the mountains, or south or east, the people still retained their name of inhabitants of the plain.

The methods adopted by the Chinese are not altogether unknown to history. They consisted mainly in carrying a bottle of spirits in the right hand, and in the left money, which was lent out at 50 per cent. per annum on the security of a mortgage on land.

These people for the most part speak Chinese, and those on the borders of the savage country act as interpreters and middlemen in times of peace between these hereditary foes.

It is perhaps a question whether the borderers or aborigines have the best claim to the title of "savages." In a skirmish in 1891 the day was with the borderers, and at a banquet which followed the battle the head of a savage Chief who had been taken prisoner in the fight was, after being carried around the neighbouring villages with much ceremony, finally served up as the "grand plat du jour." The aborigines seldom make an unprovoked attack. The male dress is like that of the Chinese, with some distinctions, of which the most striking is of a somewhat comic nature: one part of the costume suggests a kilt, which is, however, worn behind and divided up the middle, the right hand division viewed "a tergo" being conspicuous by its absence.

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* Several cases of castaway Pacific Islanders coming from enormous distances in open boats have happened in recent years; the canoe in which one such party came is still visible in Anping.

They shave the head and plait the queue, and the women abstain from indulging the beauties of fairy feet. They are remarkably free from the false modesty which distinguishes Chinese women.

According to native custom the inheritance is said to be through the mother; and in intermarriage with the Chinese the wife is usually the native; and notwithstanding much that has been said to the contrary, are on the whole a distinctly moral people, though their conceptions of the marriage state may not accord with the laws of dogmatic theology.

There is a Chinese Sub-Prefect in Taiwanfoo who is concerned with their affairs, and some of the more advanced compete in examinations with the Chinese, ranking, however, by themselves.

In religion they usually follow the Chinese, but have besides various customs of their own.

Further north there are what are known as "civilized" aborigines, differing little from the above except that they date from a somewhat earlier period; their degeneration is proceeding with great rapidity, though the missionaries claim to have done somewhat to arrest this process.

Their original religious observances appear to have had chiefly to do with rogation and thanksgiving for their crops. They also employed priestesses to exorcise the maleficent demons which they consider to be the cause of sickness and misfortune.

We now come to the aborigines proper known under various names and presenting very varied characteristics. It will be only possible to give a rough general description of them, concluding with notes on some tribes in the south which have been the subject of more accurate observation than the rest.

Those in the hills live in villages, the houses being built of stone, roofed with slate. They are on the whole remarkably cleanly and neat, and the dwellings have a generally home-like appearance. They are, with few exceptions, friendly to foreigners, and particularly appreciate gifts of soap, fancy coloured cloths, which they unravel for ornamental purposes, needles, steel implements, small mirrors, and the like. It is hardly necessary to state that arrack, powder, and shot are always welcome acquisitions. They retain, to the highest degree, the instinct of savage peoples, which enables them to follow the tracks of strangers by signs which would be invisible to an unpractised eye, and have been known to follow for miles without being seen or heard parties of strangers whom they considered to be encroaching on their domain and then suddenly surround them on all sides in a position where defence was impossible. This notably happened to a party of foreigners and Chinese going to survey for the South Cape lighthouse. The foreigners, however, although taken prisoners, were treated with consideration until an arrangement could be come to.

Exceptions to this treatment of foreigners have been generally due to their own indiscretion; from personal experience it can be said that they are most hospitable and friendly to those who have the good sense to treat them as "brothers," and willingly take their part in any athletic exercises, especially such as are new to them. They will listen with evident pleasure to foreign singing, solo or otherwise, and will return the compliment with their own pathetic chants, consisting of solo and chorus, all in the minor key, and by a display of their war dances in which they eagerly invite the unpractised foreigner to participate.

Those living on the hill sides build their houses of bamboo, grass, and mud.

Everywhere the utmost order prevails, and there is often a large house outside the village where the unmarried men sleep.

They carry on a certain amount of agriculture, the chief article of cultivation being a kind of millet.

During peaceful times they carry on barter with the Chinese, but petty wars are of constant occurrence between them, in which the real advantage is chiefly with the savages.

Such occasions for conflict recur at frequent intervals; for instance, when any petty official is stirred by ambition he entices some of the savages, under plausible pretexts, to come down to the plain, treacherously seizes them, coops them up poultrywise and puts them to death, multiplies the number by a large coefficient and reports the "result" to his superiors.

Such behaviour often leads to severe requital and prevents much prospect of enduring peace.

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The possessor of the largest number of skulls sometimes obtains the reversion of the Chieftainship.

It may be added that the Chinese covet the back part of the brain of the savages for edible purposes, as this part, the liver, and also the heart are supposed to be the seat of courage.

Memorandum on the Amis and Paiwan Tribes.

The former of these tribes is scattered in small villages along the east coast of Formosa from Pailam to South Cape.

Tradition describes them as descended from a ship-wrecked crew of white men who were allowed to intermarry with the tribe on condition of their descendants becoming "hewers of wood and drawers of water" for ever.

Although numerically the strongest tribe in the district, they still adhere in the main to this condition. They are an inoffensive people, and depend principally on agriculture and fishing. The recognized head-quarters of the tribe is near Pailam; there is, however, little doubt of their being a distinct race, differing in most respects from other savages.

An examination of their language, habits, and general physical appearance confirms the probability of their traditional descent. They are hairy, with prominant nose and square chin and of muscular build, contrasting strongly with their neighbours.

They have an idea of the first man and woman, and show a stone on which the impressions of the footprints of all animals known to them can be seen. They believe in one Supreme Deity, to whom ceremonies of adoration are performed by priestesses.

Further south, spirit worship and various kinds of divination are practised, and the performances of the priestesses strongly resemble the Virgilian account of the Sibyl of Cumæ.

The Amis believe in an after state of retribution for evil, and reward for good. Their ethics are rather dictated by natural law than by any specific moral code, and, as is the case in more civilized regions, everyone cheerfully anticipates Heaven for himself, and with equal certainty another location for his neighbours. They, however, mitigate the horrors of this decree by remarking that, on the whole, the next world must be better than this, since no one comes back to complain.

They are fond of music, and often sing and chant; the whole of their music is set in a minor key, and is quaint and weird, but in the end becomes monotonous.

They live to a good old age, and an instance may be quoted of an old gentleman of 72 summers, having a grandson of 32, and a son, a mere infant in arms, by a recently married wife, and himself able to walk 40 miles a-day, uphill and down dale, without being sensible of fatigue.

Graves are dug in forests, but the site is speedily forgotten. After death the priestesses interview the deceased, affirm his happiness, and threaten severe penalties on him should he dare to return.

These people are monogamous, but divorces are frequent amongst the young, being sensibly allowed for incompatibility of temper. After 40 years of age marriage becomes a more fixed institution; the offspring of divorced persons are permitted to decide for themselves to which parent they will attach themselves. Prostitution is unknown, and the guiding principle is the impulse of desire. Close relationship is a bar to marriage.

Imperfectly-formed children are killed at birth. In devotion to parents they rival the Chinese, and also resemble these latter in the employment of a go-between where a man wishes to marry outside his own community. Children are taught to swim, before they can walk, by throwing them daily into water and leaving them to struggle for a time.

All land belongs nominally to the Chief, but the occupiers are tenants in perpetuity, and pay an annual ground-rent in kind. Property descends in the family, and when it becomes insufficient an additional grant is made, if excessive, it reverts to the Chief.

Dollars and cotton fabrics, powder and lead, arrowheads, cutlasses, and knives are taken in exchange for deer horns, rice, barley, grated potatoes, jerked deerflesh, dried fish, pork, and fowls.

The Government is paternal from the Chiefs downward. Manslaughter and lesser offences are settled by fines and other penalties inflicted by the Chiefs, and in the case of differences between tribes (failing a friendly agreement) war is declared; and

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victory determined by counting the casualties, which being decided, the losers submit to an indemnity.

Time is reckoned by harvests, two to the year.

Thunder and lightning are caused by two spirits, male and female, Kokring and Kolopiet.

Their notions of astronomy much resemble those of any primitive people.

Paiwan Tribe.

The immediate neighbours of the Amis are the Paiwans, a turbulent and warlike people, fond of the chase and amusements, cleanly and neat in all their ways, and truthful and honest to the last degree, and with a high appreciation of learning and intelligence in others.

When under their late Chief Tokitok they were both feared and respected by the Chinese. The members of the Chief's family are distinguished from the subjects by slender build and delicate features, and by their aristocratic manners; in all these respects their people are quite different. They were formerly noted head hunters, but cannibalism is unknown.

They report the existence, four days from South Cape, of a cannibal tribe dwelling on a high mountain; and more remote, red-haired savages, speaking a language of their own, and boycotting all their neighbours.

As to their origin it is really from a tribe known as the Tipuns, but traditionally from two beings, male and female ("Yin" and "Yang"), who sprang from a rock.

Their "valhalla," or paradise, lies in the north-west. They are very hospitable, and their Chief says that his word will protect the foreigner all through South Formosa. Men and women go about naked when at home; when abroad the men wear waistcloths, and the women jackets and petticoats.*

The Hakkas form an important and strongly marked feature of the population. It is they who carry on the greater part of the barter trade with the savages, the principal articles supplied by the latter being hard-wood, skins, camphor, turmeric, savage cloth, honey, and deer horns, which the Chinese use for medicine.

Till recent years no official was allowed within their inclosures, the rule of the Magistrates chiefly extended over the hard-working population of the western plains, official aid being chiefly invoked in important civil cases, whilst criminal cases are settled by *lex talionis.*

There are also large numbers of agricultural colonists from Fu-djien, especially from Swatow, where for some years a system of Governmental assisted emigration has prevailed, grants of land being made in uncultivated regions in the south.

In 1888 the Chinese formed an alliance with the savages with the view to secure the repeal of the recently imposed land tax, and the situation becoming serious, naval aid was invoked; but the matter was finally settled by the Governor issuing a Proclamation making concessions to the èxtreme poor. The rest of the population come chiefly from the Fu-djien Province.

Communications.

Formosa naturally suffers from a lack of good harbours, and this want is paralleled by the almost total lack of the means of internal communication. The natural water communication being poor, good roads are the more urgently needed. There are, however, remains of roads made by the Dutch in a very few places, notably a road turning off the lagoon at Takow and running to the city of Pitao.

Some twenty years ago the complete survey was made for a road between Anping and Takow viâ Taiwanfoo (and since then yet another), and a telegraph line to Takow was set up along the proposed route.

Although the country is fairly level there are many places where a direct road would entail the building of numerous bridges or aqueducts. The results of the survey for such a road are still available, and there seems at the present time a more hopeful prospect of the authorities taking up the matter in earnest. This would probably also lead to the development of the mines in the south of the island. The dredging of Takow Harbour, which has been twice surveyed during the last twenty years, and found eminently suitable to make a harbour large enough to contain all the ships of the British squadron in China with ease.

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* See Appendix (D).

The building of a breakwater at Anping, and dredging of the bar, and, finally, a great extension of trade and development of the resources of the island.

If even the rough tracks which now do duty for roads were to be improved and maintained, the cost and time of transport would be reduced one-half, and immense benefits accrue. As a result of the invasion in 1874 by the Japanese, the Chinese attempted to establish some regular communication with the east coast, and pushed a military track down this side, extending for about 70 miles, from Suao Bay southwards. Some of the savage tracks were also improved with view to facilitate the communication from west to east. The savages appear to have always had regular lines of communication in the mountains, with definite points of convergence. These have been found to cover a large extent of mountainous country.

In the western plains of South Formosa the main traffic from the south to the city of T'ai-pei-fu passes over narrow paths, through paddy fields, and, for short distances, over cartroads. These latter, during the rainy season, become river-beds, and require deep wading to cross, whilst the natural rivers become impassable torrents. In winter the roads are deep in dust.

Produce from the interior is conveyed in bullock-carts, whether to Treaty ports or to the nearest market. The huge solid wheels turning on wooden axles give forth the most heartrending groans and shrieks. The unwary foreigner straying at large in these narrow by-ways is moreover apt to experience a rude awakening from his reveries on the beauties of nature when pursued by an infuriated water-buffalo impelled by a fear yet more intense than that of his potential victim.

Many amateur and involuntary bull-fights are on record, ending in narrow escapes. It has often been necessary to shoot the animals in self-defence.

There is in contemplation a regular line of telephonic communication between Taiwanfoo and Anping, and the Intendants' Yamên has already been connected with the fort.

Taiwanfoo was connected with Takow by telegraph in 1877, and Anping, Taiwanfoo, and T'ai-pei-fu in 1888.

Communication with Takow is carried on by one tug and two steam-launches slow and unwieldy.

Although this Report is chiefly concerned with Tainan, it is necessary to say one word about the railways in the north. There are two lines, north and south branches, both terminating in T'ai-pei-fu.

In 1893 there has been a fairly regular service between Twa-tu-tai, a suburb of T'ai-pei and Kelung, a distance of 19¼ miles. The length of the southern branch is 43½ miles, and at present terminates at Hsin-dzu or Teck Cham. The chief hindrance to further progress lies in the bridging of the Tyk'a River. A certain quantity of new coaches and engines were imported during 1393.

Shipping.

Taiwan is visited about once a-fortnight by a regular coaster. During the sugar season steamers are chartered to Shanghae or Tien-tsin; occasional German steamers visit the port, and previous to the war the Japanese took sugar from Takow. Sailing-vessels have been ousted almost entirely by steam.

Ports and Harbours.

Formosa contains two Treaty ports, Tamsui ("fresh water") in the north and Tainan in the south. We are principally concerned with the latter. In the term Tainan are included Anping and Takow, distant some 26 miles by sea, and 33 miles by land. The latter was formerly the seat of the chief part of the trade, but most of this has already departed, and almost all ships now anchor in the roadstead off Anping, which affords a safe anchorage during seven months of the year.

Takow is situated in longitude 120° 16′ east and latitude 22° 36′ north, that is to say, a little south of Canton. It lies on the edge of two sides of a lagoon, the entrance to which is through a chasm some 75 yards wide. Apes Hill lying on the north as one approaches the entrance, and Saracen's Head, a sheer ascent of some 180 feet on the south.

Anping is about 2½ miles distant from Taiwanfoo. The port was opened in 1858 by Treaty, but business did not begin until 1864.

Sixty miles to the north-east of Takow lie the Pescadores, so called by the Spanish, and 20 miles south is the small island of Lambay, called by the Chinese "Lesser Loochoo," and chiefly inhabited by fishermen. It is also resorted to by the missionaries in summer for health.

The Pescadores are strongly fortified. Turtles and terrapin are found both there and in Formosa up to a considerable size. The chief product is pea-nuts.

Forty miles east of the South Cape lies the island Boteltobago, and further north the small island of Samasana.

Kelung and Tamsui are the two ports on the north; close to the latter is Twa-tu-tia, the home of the tea trade. The anchorage is not of much use as a port of refuge, owing to the difficulty of entering and leaving, though safe when once gained.

To return to Takow. The lagoon is about 7½ miles long, and varies from a quarter to one mile in breadth. During the last twenty years, owing to the constant process of silting up, the accommodation has become more and more limited, so that, although vessels drawing some 15 feet of water could still enter at high tide, there is scarcely room for them to swing without going aground on the spit.

A very fine harbour could be made, at an estimated expenditure of 40,000*l.*, and once made could be easily maintained. Another exit could also be provided by excavating a passage through a narrow spit which separates the lagoon from the sea, and it is thought that by so doing a scour would be set up that would of itself tend to keep the harbour open.

A similar but more limited operation could be readily undertaken at Anping, but would probably entail the building of a sea-wall and more constant dredging. Even as matters stand, however, a great improvement could be effected by the working of the screw of a small steamer anchored in the channel, a process which has been satisfactorily tested in Shanghae.

Other small ports southward are Tang-Kang and so-called Expedition Bay (Lan Kiao Bay); at the latter place the Japanese landed in 1874. These are much frequented by native craft.

A harbour of the east coast is Suao Bay, about 40 miles south of Kelung. It is safe and easy of access. The Kelung coal-field extends thus far, and a seam near the shore was for some time worked by the Pepoahuans. Coal has also been found at Tang-Kang.

South of this is Pailam. A blockade of Formosa, in order to be effective, would have to include this port. During the so-called French blockade large numbers of men and quantities of munition of war were introduced at this point.

The steamer which runs about once a-fortnight between Hong Kong and the island, viâ Swatow and Amoy, makes Anping its terminus, and, consequently, the whole of the import trade is done there, and the greater portion of the export.

In rough weather a native "tekpai," with a tub for the accommodation of the passenger, is the only craft able to cross the bar, so that the working of cargo has frequently to be supended in the summer, and the steamer is often compelled to run to the Pescadores for shelter, or, under exceptional circumstances, to Amoy for fresh supplies. This state of things lasts for about five months during the year.

Lights and Beacons.

The Formosan lights are as follows: one at Fisher Island, in the Pescadores; one at Anping and Takow; one on the east promontory at South Cape; an entrance beacon at Tamsui; and Bush Island Beacon at Kelung. There is an urgent necessity for one more lighthouse on the most northerly island of the Pescadores. This is a question of general interest, as the Formosan Channel is the highway of China trade. Amongst other wrecks which might possibly have been avoided by this means may be mentioned the "Taiwan," and more recently the loss of the "Bokhara" and "Normand."

Administration.

Formosa was constituted a separate province under a Governor by Imperial Decree in 1887, the highest official in the Formosa circuit being the Intendant, who resides in Taiwanfoo. For military purposes the island forms a Brigadier-General's command, but the Governor holds the rank of Provincial Commander-in-chief.

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Missions.

Catholic. The only Catholic Mission is that of the Dominican Fathers, who speak for the most part only the native dialect, Spanish, and Latin, thus communication with them is rather difficult. They have several churches and a foundling hospital. Their head-quarters are at Takow. They began work in 1859.

English: Presbyterian. This Mission has its head-quarters in Taiwanfoo, and averages about ten members, including ladies. Their good works include hospitals, a school, a school for the blind, and a girls' school. They also have a station in the Pescadores. Their work in Formosa commenced in 1865.

Products.

Tea. The trade in tea dates from the opening of Tamsui. It has greatly extended since that time. Little attention is paid to the rearing of the plant, and of late years complaints are made of increasing adulteration. The fine flavour is entirely due to the soil; production is capable of almost indefinite increase.

In 1893 the export from the north was the largest on record, being nearly 22,000,000 lbs., or about six times that of 1874.

A little tea is also grown in the south, some of it being of particularly fine flavour, and all, so far as I can ascertain, consumed locally.

The greater part of the Formosan teas goes to America; some is consumed by the Chinese in the Straits and the Dutch East Indies. This latter kind is scented.

The crop for 1894 promises well; there have been no typhoons to work damage.

Sugar. The Takow sugar is far superior to that of the Taiwanfoo district, but there is some reason to fear that the soil in both places is gradually deteriorating, and as the cultivation is in the hands of persons too ignorant to take kindly to improved methods of cultivation and crushing (by machinery), which foreigners have attempted to introduce, and all extraneous aid in the way of manures is neglected, this is only to be expected.

On the whole, it must be said that the chief use of Formosan sugar is for purposes of adulteration, euphemistically known as "mixing."

Moreover, as the world can produce, at a few cents a-pound, more sugar than it can eat, the destination of the produce of the island can be of interest to no sane person, except those directly interested in it.

I append the following description of the primeval machinery employed:—

Machinery used in crushing sugar. Two granite rollers, 2 feet in diameter, and 2½ feet high, are placed in apposition, hard wood cogs are fitted into depressions made for the purpose at the top of each roller; by means of the latter, motion is imparted to the right-hand stone from the left-hand one. At the top and bottom wooden spindles are let into the centre of each stone, which is thus fitted into a bed-plate, while the top projects through a transverse binding beam of wood. At the further end of the lever, connected with the prolongation of the left-hand upper spindle, are yoked buffaloes.

Much, it will be seen, depends on the skill of the millwright, while the wearing of the wooden parts is a constant source of outlay.

Owing to general clumsiness of construction, a triple crushing is necessary.

The prime cost of mill, millshed, &c., is not less than 40*l.*

Foreign mill. Experiments made with a foreign mill show a gain in its favour of 18 per cent. by weight obtained. This amounts to an average total loss of 50,000*l.* per annum.

Moreover, the native mills are filthy and disgusting in the extreme, and in this respect the conditions of manufacture defy description.

Spirit is roughly distilled from molasses that would otherwise be thrown away by any one who cares to buy.

Technically, Takow brown, owing to the richness of the cane and soil, contains a large proportion of crystallizable sugar, but its gross adulteration only renders it suitable for certain markets, which do not require refined sugar.

The chief markets for Taiwanfoo sugar are the coast ports; it is impossible to give an approximate estimate of the junk trade.

Native sugar guilds have successfully boycotted the foreign vendor, and it is only in consequence of their fear of the authorities that they permit the foreigner to do any business. The subservience of some firms is severely strained.

Relations of foreign firms with native employés This seems a not unfitting place to introduce a few remarks on the relations of some firms to their compradores and native employés.

Whereas in some branches of the export trade an open partnership is declared

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between the parties, it is doubtful in others who is the real master and who the servant. This is due to the ignorance by the so-called masters of all Chinese customs and modes of thought, and the neglect to learn and insist upon the rights and respect which a native employer exacts from his servants. An ordinary coolie in the employ of a foreign hong is enabled to express daily to the outer world his utter contempt for the capitalist he serves, while the latter is perfectly unaware of the signs of the unspoken language employed. Contempt is followed by "squeezing," and it will be readily understood that all having any foreign connection—and their ramifications are wide—are allied together to extort the uttermost farthing from the victim, who, in his eagerness for the "almighty dollar," too often neglects to insist on the surest means of success.

The excesses of these myrmidons are outrageous to a degree, and are not confined to "squeezing," or to their master's property, but, under cover of his authority, and trading on the dislike of foreigners to make a fuss about trifles, are extended to others.

"Many a little makes a mickle," and the coolie on 6 dollars a-month soon blossoms into a small capitalist—able to retire at any moment if he wishes--a consummation that it takes his master many years to attain to.

Moreover, the general status of foreigners is apt to be prejudicially affected by the preferment of "doubtful" claims. This can be obviated by a careful preliminary examination as to the facts; but, nevertheless, the innocent suffer with the guilty, and it is not unnatural that many Chinese should regard the foreigner as being an easy and rapid stepping stone to wealth created for their special benefit.

Camphor.

In the north of the island the trade in this product is rapidly growing in importance. The export in 1893 was a record.

The trade, however, is attended with considerable risks, as heavy advances have to be made, and sometimes, whether due to the raids of the savages or other causes, without any return, whether in cash or camphor.

Many difficulties are thrown in the way by the authorities, and taxation under various heads is very heavy. New districts are from time to time opened up; the Chief at present being Hoonim or Yünlin, Kagee or Chia-I, Chip Chip, Polihsia, and Ao-doâ-pö. Prices are very variable, but the total value of the southern export in 1893 increased by more than one-half.

The method of obtaining crude camphor is as follows:—

A tree is selected and scraped by an expert to ascertain whether it contains sufficient camphor to repay labour. The scrapings are pounded together and boiled with water in an iron vessel covered with an earthenware jar, on which the camphor sublimes and condenses.

In case the yield is good the tree is doomed to fall, and after scraping it till this occurs the roots are also used.

A more wasteful method there could not be, and owing to the absence of roads, vast quantities of this and other valuable timber are neglected, as it would not pay for transport.

Camphor oil

Camphor oil, not camphorated as known at home, but the essential oil of camphor, is obtainable in small quantities.

It is highly useful as a liniment in rheumatism, &c., superior when mixed with brandy and laudanum, even to Elliman's, and also has some reputation for keeping away mosquitoes.

Petroleum.

Petroleum, no doubt, is to be found at various places in this island; the only effort hitherto made by the Chinese was when men and machinery were obtained from America several years ago and systematic boring commenced; unfortunately, for political reasons, this enterprise was abruptly put a stop to by the Central Government. At one place, close to Tang-Kang, the fishermen assert that the oil runs freely down into the sea, but being in a crude state, and owing to their ignorance of any means of purifying it, no attempt to utilize this natural source of wealth has been made.

Castor oil.

Ricinus communis or castor-oil plant grows wild in Formosa. No attempt is made to cultivate it, nor to obtain it in large quantities. Considering the increasing use of castor-oil in the world for lubricating purposes and the ease with which the oil may be extracted, there is here room for the profitable employment of capital, as the plant can be readily cultivated on land now considered outside the profitable margin, on which it grows wild, and often forms the only kind of vegetation to be met with in such places.

Coal.

There has been an increase in the outpot, but the Government mine has been neglected of late. Besides the chief mines in the north, coal is also found in Tang-Kang and in the Alikang district east of Takow. The Kelung coalfield is known to extend down to Suao Bay.

In a word, coal is spread almost all over the island, and the kinds of it found are numerous, including, so far as I can learn, not merely anthracite, but also many grades between "worst Japan" and "best Cardiff."

It is almost unnecessary to point out the enormous value which this fact should give to the island in the eyes of a modernized China, or any other Power which knew how to turn such wealth to proper account.

Sulphur.

Sulphur is found near Takow. In large quantities near Tamsui and elsewhere.

There are numerous sulphur springs in the island, hot and cold.

Rice.

Formosan rice is both abundant and of very fine quality. The export is entirely in native hands. Considerable quantities go to the Pescadores. Sufficient for four years' consumption is said to be produced yearly.

Salt.

Salt is manufactured in the south of the island. There are four salt-making places along the coast, which are said to produce 15,000 tons a-year.

Gold.

Gold washing goes on regularly in the north. Gold has also been found near Lang Kiao, and between Takow and Taiwanfoo. Auriferous quartz is known to exist in various other places, whilst lead and silver are also present in the island.

A few years ago a labourer, whose house dated in part from the time of the Dutch occupation, was engaged in pulling down the walls with a view to rebuilding, when he discovered in a crevice several large bricks of solid gold and a pot containing ancient coins. The babbling of some old women got to the ears of the authorities, who immediately threw a guard about the place, and took possession of the greater part of the "treasure trove." It may have been coincidence merely, but the official concerned shortly after retired.

This seems to lend some confirmation to the common native reports that treasure is concealed in or about Fort Zelandia.

Ground-nuts.

Ground-nuts are produced in great quantities in Formosa and the Pescadores, and largely eaten, while ground-nut cake is exported to the mainland for use as a manure. The oil, also, is in great request as an article of food and for lighting purposes. Pea-nuts are said to be more nutritious than lentils, and, *à fortiori*, much more so than beef.

By the native method of extraction 1 cwt. of nuts will produce 25 lbs. of oil, worth about 30*s*. Although the mode of preparing and crushing is exceedingly rude and slow, it is not likely to be altered for the better while labour is so cheap.

Pine-apple hemp.

Pine-apple hemp is exported to Swatow, and made into a fine grass cloth—very cool wear in summer.

Other products not at present requiring detailed mention, but some of which would be capable of great and profitable development, are :—

Indigo.
Jute.
Hemp.
Tobacco.
Turmeric.
China grass.
Dried fruits.
Betelnut fans.
Various kinds of grain.
Various kinds of vegetables.
Rice, or pith paper.
Pine-apples.
Mangoes.
Oranges.
Lungans.
Bananas.
Soft squash, or custard apple.
Pumeloes.
Persimmons.
Pomegranates.
Dried oysters.
Fish roe.
Silver filigree work.
Leathern belts with pockets.
Savage bags and cloth.
Pine-apple cloth.
Fine matting.

Nor does this nearly exhaust the list.

Of the above, lungans are akin to the better known lichee, which does not prosper in the island. These and other kinds of fruit are largely exported by junk. Pine-apples at about 1*d*. a-piece, and oysters sometimes as cheap as 10 for a ¼*d*. are, one would think, calculated to attract epicures in the season, but the time is hardly ripe for an invasion by the excursion bands of "Cook" and "Gaze." The fish roe, a product peculiar to this island, also makes, with curry, a "dish fit to set before the King."

Formosan matting is much sought after, on account of its extreme softness and durability, and is a luxury to sleep upon during the hot nights of summer. The finest kinds command a very high price.

Imports.

Imports may be briefly dealt with.

The most striking feature of the trade is the failure of English imports to adapt themselves to the peculiarities of local requirements.

This applies more specially to piece-goods, but the same fate has overtaken Indian opium.

Speaking generally, our products are utterly unfit for the use of the "toiling millions," who wear native cloth and nothing else. Cheapness is the desideratum—that is, apparent cheapness—not durability, or ultimate cheapness. Besides this, the Chinese are also readily attracted by ingenious novelty. I give at a venture one instance of the sort of thing, which would certainly "take," and which has not yet been tried, while any one interested in the local import trade can take this single case as a basis of ideas to be readily got by the taxation of his own ingenuity.

My suggestion, then, is this: instead of importing the ordinary cotton reel of commerce, let the reel be double the size, and hollow, with an assortment of suitable needles in the interior; the sale would increase by leaps and bounds.

This notion is really the outcome of a frequently expressed local want, and a very slight fertility of invention would enable manufacturers to meet other and similar desires of the people in things great and small.

Hitherto the Japanese and Germans have been more successful in this respect.

Opium.

Opium is, of course, the chief foreign import. However, the amount of Indian is small; nearly all the foreign opium consumed in the island is Persian. Considerable quantities of native opium are smuggled in at the west coast ports. The poppy is now being cultivated in the mid-Formosan districts.

Adulteration by Tien-tsin cake is ever on the increase, and with a gradual improvement in touch the native article is likely ultimately to supplant the foreign one.

As the percentage of smokers to population in Formosa is very large, and the evil effects are very small, while smokers firmly believe in the prophylactic virtues of the drug, this is not a happy hunting-ground for those of the anti-opium persuasion, so that the small number of persons holding that opinion who reside in the island, in order to account for the absence of evil effects, are reduced to denying that notorious smokers ever do touch the opium pipe.

The permanent effect of stopping the foreign opium trade on the consumption would be *nil*, as the demand would be speedily met from other sources.

Foreign medicines are readily adopted, and much imposition by charlatans pretending to Western knowledge is successfully carried on.

Worms being a common complaint, worm medicine, called by the Chinese "ka-chi-ping," is in great vogue. Other medicines used are iodoform, morphia pills, and sulphate of quinine in large quantities.

In 1878 an attempt was to be made to grow cinchona in the highlands; nothing has come of it, but with skill and patience such an experiment might be successfully carried out.

Native tobacco is imported in junks, and other dutiable goods also enter by the west coast ports, where the opportunities for smuggling are greater. The increase of the junk trade dates from the French blockade, which stopped foreign trade, but from its intermittent character gave many opportunities to junks.

Sport, &c.

This Report would not be complete without a few words on the sport to be had in the island, and the mention of the chief birds and animals.

First and foremost, because most easily accessible, though hard work in itself, stands snipe-shooting, which is abundant in the marshes round Anping and Takow, at Kusia, and between A-Kung-Tien and Takow, and elsewhere. In by-gone years as many as fifty couple have been got in one day by a single gun, and, though this record is not likely to be approached, the sport is still of a high order. Besides snipe there are abundance of duck and teal—the only difficulty being to get near them; out at sea they may be counted by the thousand, and the natives net them for sale in considerable numbers before their early morning flight seawards.

There are also pheasants, some species peculiar to the island, notably, Swinhoe's and the Formosan pheasant, partridges abound in somewhat inaccessible localities, also curlew and quail. Great numbers of golden plover, fieldfares, wild pigeons, and doves are found during the winter months; whilst eagles and many accipitrine birds, parrots, and many other species of smaller birds (some fifty said to be peculiar to Formosa) abound in the interior. In the less inhabited parts of the island are wild boar and deer; the antlers of the latter may be purchased from the savages; wild dog or coyote, black climbing bear, gibbons and apes, badger and anteater, while weasels, flying squirrel, a species of leveret and musk rats are common everywhere. Mention must also be made of a peculiar kind of hog with dorsal bristles, and the piebald pig.

The insects of China have been said to be "unknown to the naturalist," but those of Formosa are well known to the resident, and very numerous flying beetles, centipedes, mosquitoes, mantis, and various grasshoppers, &c., while residence in Taiwanfoo district is rendered a misery during the winter months and sugar season, by myriads of flies and fleas. There are magnificent butterflies and moths.

Fish are abundant, and do not appear to grow less numerous, though they form the staple food of the inhabitants. The fish roe so highly appreciated, by epicures and connoisseurs, in curries and similar oriental dishes, and largely eaten by the Chinese, who prepare it in several distinct ways, is obtained from the "black fish"—a species of grey (?) mullet, the shoals of which are eagerly looked for by the natives during the months of December and January, when they come down from the Japan seas to spawn. It is surprising that no attempt to export this delicious luxury, and introduce it to India and Europe has ever been systematically made. It can be prepared so as to keep for a long time.

Fin whales are seen along the coast, and sharks, said not to be man eating, are common, the fins prepared being exported as a Chinese delicacy.

Snakes are numerous, mostly harmless, but the cobra da copella has been seen. There are also numberless lizards, a poisonous water-snake, and a vividly marked and poisonous sea-snake.

The island was visited at Christmas time 1893, for sporting and other purposes, by two officers from Hong Kong, who also made a highly successful visit to the savages near Ban Kim Sing. Yacht racing at Takow, common some years ago, has died a natural death.

What little riding there is is confined to foreigners and military officials. Beasts of burden are two-legged and much less efficient and manageable than their four-footed brethren.

General.

It was once thought that there were small volcanoes in the island, but these have been found to be fires caused by gas issuing from the ground, which by spontaneous combustion ignites the rock oil that is abundant in the same neighbourhood.

In 1888 a postal system was inaugurated, two sorts of stamps were issued, one official and one commercial—facsimiles are appended below;* they are not sold prior to use.

Some years ago two beautiful stamps were engraved in London for use in the island, but stopped within a month or so of issue, and then used as railway tickets. Both denominations are now unprocurable except by chance, and therefore an object of philatelic desire.

In Shanghae one was recently offered for sale at 20 dollars, and at that price it is to be hoped it will remain on offer, though the enthusiasm—not to give it another name—of collectors is almost boundless, or at least limited only by the pocket.

Every one knows the story of the expulsion of the Dutch from Fort Zelandia. It is curious that among the natives oral traditions about Koxinga have survived to the present day. Here is one of many:—

Koxinga saw in a dream Fort Zelandia and surrounding country, and it was told him—there is a singular convenience about the impersonal form—that the goal of his ambition would be reached within a short space of time after arriving at the place so revealed.

He was unable to ascertain the exact place revealed, supposing it to lie in the direction of Batavia, a further vision was conveniently vouchsafed which gave the necessary information, and he fitted out a fleet in three portions, which put to sea with secret orders.

The division of his fleet into three parts completely deceived the Dutch, who sent their own fleet away, and when on a given day the orders were opened, the tenour of them was found to be that the whole fleet should assemble in a small channel north of the present Anping; every one knows the result.

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* See Appendix (A).

To sum up: The following is a brief summary of the general condition of Formosa: the soil and climate make it possible to produce almost anything; there are natural advantages and sources of wealth—mineral and vegetable—which might readily make it one of the wealthiest, as it is one of the richest spots in the world, but for lack of judicious and sustained encouragement, trade languishes and progress is impossible, nor does the present régime hold out any hopes of improvement.

For that peculiarly modern product known as the "general reader"—a term we use only to cloak our general ignorance—this Report falls naturally into the same category as that in which the schoolboy placed the Latin grammar:—

> "Tho' all the world should be submerged,
> This book would still be dry."

But if it succeeds in attracting any attention not to itself, but to this rather interesting and little known part of the world, it will have justified its existence.

Accompanying this Report are extracts from a paper on the botany of the island, for which my best thanks are due to the writer, A. Henry, Esq., F.L.S.

As regards the body of the Report, it is scarcely necessary to point out that in an undertaking of this kind originality is only possible within narrow limits, so while on the one hand I hope a good deal of the information here given may prove to be new, I have, on the other hand, not hesitated to borrow any and everything that seemed to be true and worth borrowing, and trust that the end will justify the means.*

(Signed) NEVILL PERKINS.

January 31, 1895.

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* See Appendix (C).

Appendices.

(A.) Facsimiles of Formosan stamps.
(α) Commercial.
(β) Official.

(B.) Extracts from an unpublished paper on the botany of Formosa.

(C.) Bibliographie.

(D.) Comparative Table of savage dialects.

APPENDIX (A).

Facsimiles of Formosan Stamps.

[Not printed.]

APPENDIX (B).

MR. AUGUSTINE HENRY, F.L.S., of the Imperial Maritime Customs Service, has kindly allowed me to make the following extracts from a paper, as yet unfinished and unpublished by him, on the flora and economic botany of Formosa.

* * * * * *

The materials on which our knowledge of Formosan plants is based all practically lie in the Kew and British Museum herbaria, there being very little in Continental or American Institutions. The "Index Floræ Sinensis," now being published in parts by the Linnean Society, has utilized these materials to some extent only, for since the appearance of the earlier parts especially large collections have been sent to Kew, which are as yet unworked. No adequate account of the flora has been written, nor is it even now possible to do so, for the most interesting half of the island, the mountainous portion, has not been botanized over, except in a meagre way, by native collectors of my own in the southern part, and by one or two Europeans in the north, who have made short excursions from Tamsui. The chief early collectors, Wilford and Oldham, seemed to have touched the coast only at a few points. Swinhoe, who did so much for the fauna, collected a few plants. Tamsui has been visited by Mr. Ford, of Hong Kong, and Mr. Hancock collected most of the ferns in that neighbourhood, but paid little attention to flowering plants. The Rev. W. Campbell some years ago made a collection in the centre of the island, which was, however, unluckily much injured by accidental immersion in a flooded stream while it was being taken coastwise. This collection is now embodied, so far as it was available, in the herbarium of the British Museum. Some three or four years ago Mr. Playfair, while acting as Consul at Tainan, made an admirable collection of about 400 species, chiefly from the immediate neighbourhood of Takow, with a few species from Anping and Taiwanfoo. His collection includes, perhaps, a decade of new species and a considerable number of plants hitherto only recorded from the Philippines and from the Indo-Malayan region.

* * * * * *

During 1893 and 1894 I myself have made large collections at Takow, both on Apes Hill and on the plain, and increased Mr. Playfair's 400 Takow species to over 600. Also, following a practice that was a success at Ichang, I employed native collectors, living at distant places, who bring me specimens of everything they see in fruit or flower, and in this way I have obtained a large quantity of material from two districts, one the neighbourhood of Bankimsing, a village situated at the base of the lofty Kalee Mountain, 30 miles east of Takow, the other from South Cape and the surrounding mountains, where under the guidance of M. Schmüser, one of the lightkeepers, the savage Chief "Capting" made a splendid collection.

Both these localities I visited, but was only able to spend a day or two at each. I do not think that anything has been collected by us at a height of over 3,000 feet, so that the higher mountains and valleys are as yet virgin soil, and richly tempting to the explorer. Duplicates to over 2,000 numbers have been sent by me to Kew, comprising, perhaps, 1,000 species in all. Of publications on the flora of Formosa I have mentioned the "Index Floræ Sinensis," which is incomplete, as the earlier parts make no reference to Mr. Playfair's collection, and my own collections have not arrived in time to be included in any of the eleven parts published. Mr. Hancock, in the Customs Trade Report on Tamsui for 1881, has drawn attention to the more striking constituents of the flora of the north end of the island, while his account of the agriculture is interesting. I notice he refers to small plots of *Caladium*, by which I daresay he means "taro," a species of *Colocasia*. One meets continually in books of reference on China with this word *Caladium*, which seems to be applied loosely to *Aroideæ* in general, and even to the common "arrowhead" (*Sagittaria*). *Caladium* is a distinctly American genus, and there is no proof that any species of it is cultivated in China, much less that any occurs in a wild state. Mr. Hosie, in his Report on the Island of Formosa, 1893, has treated of the economic botany, but some errors have crept into the botanical nomenclature which I may now set right. The indigo of Formosa is produced by the common paplionaceous shrubs, *Indigofera tinctona* and *Anil*, much cultivated in India and on the mainland of China, where the latter also occurs wild. *Polygonum tinctorium*, the dyer's knotweed, is cultivated in Manchuria and Japan, but not in Formosa, while *P. orientale* and *P. chinense* are common wild plants in China and Formosa, which do not produce indigo at all. There is no trustworthy evidence, such as specimens of the plants being gathered, available, to enable us to give specific names to the species of banana reported to be made into cloth by the savages in the northern mountains, and to the plant furnishing the rattans exported from Tamsui. The castor-oil plant common, wild in Formosa, is *Ricinus communis*. The sugar-canes cultivated in Formosa comprise two or three varieties of *Saccharum Officinarum*. Too little is known of the flora to enable any speculations on the distribution of the plants met with to be of value, but from the species known to me it is evident that there are many elements in the flora, which I shall now point out.

1. *Endemic Element.*—A good number of species are peculiar to the island. Some of these are very vigorous and abundant, whilst others are met with only in exceptional situations, and are, perhaps, dying out. An exploration of the valleys of savage territory will greatly increase the number of these species, if one can judge from the results obtained by explorations of Central China and Japan.

2. *Flora of the cultivated Plain.*—This is practically the same as that of the Indian plain, and in it I include the littoral flora, which scarcely has a single endemic species.

3. *Plants occurring only in Formosa and the Philippines.*—These occur chiefly, if not altogether, in the south.

4. *Flora, common to Formosa, Japan, and Central China.*—These species occur in the mountains chiefly. Striking examples are the varnish tree (*Rhus vernicifera*), of which no use is made in Formosa, brought to me from the Kalee Mountain; *Idesia polycarpa*, a noble timber tree, discovered by Maximowicz in the mountains of Japan, and since found in mountain forests in Hupeh, and in the same part of Formosa as the last-named tree; *Deutzia scabra*, a shrub with pretty white flowers, common on Apes Hill and throughout Formosa, &c.

5. *Outliers of the Australian Region.*—The best example of this is the very common timber tree (*Acacia Richei*), hitherto only met with elsewhere in Fiji, but I believe it is seen near Amoy, where possibly it may have been introduced by emigrants returning from Formosa. It is the most characteristic Formosan tree, occurring from north to south, in the plain and on the mountains. It belongs to the large section of the genus *Acacia*, in which the trees or shrubs bear phyllodes, or modified leaf stalks, instead of true leaves. These are set on the boughs in the vertical plane, and not in the horizontal, as ordinary leaves are. The wood of this tree—the "sung-ssŭ" of Formosans—is much used for frames of junks, rudders, cross-bars of anchors, beams of houses, &c.

6. *Introduced Plants, now naturalized, and not to be distinguished in habit from true Natives.*—These include a good number of American plants, introduced either intentionally or accompanying seeds of other plants.

I will, however, first mention the cultivated American plants, which are not naturalized, but require man's attention to keep them from dying out:—

Maize (*Zea Mays*), tobacco (*Nicotiana Tabacum*), pine-apple (*Ananas sativus*), sweet sop (*Anona squamosa*), sweet potato (*Ipomœa Batatas*).—This is the species or variety which is cultivated in Formosa, whereas at Ichang it is *Ipomœa fastigiata*, and Mr. Hemsley is of opinion that the latter, which occurs wild in the Andes, is the parent of the former variety, which is only met with in cultivation. Truly naturalized plants of American origin are:—

Guava (*Psidium Guayava*), everywhere wild in South Formosa, called "Na-pot" by Chinese, chilli (*Capsicum annuum*), tomato (*Lycopersicum esculentum*). The wild form bears small red fruit, not larger than a marble, and it is to be met with far away from European Settlements. The tomato is not cultivated by Formosans.

Jatropha Curcas, an euphorbiaceous tree, of small stature, bearing capsules containing three seeds, which yield an oil on pressure. This tree is littoral in habit, and, while known as "T'ung Yu-shu," a name more properly given to the wood-oil tree (*Aleurites cordata*), does not seem to be utilized here. In Canton province the oil is used for lighting purposes.

Pachyrhizus angulatus, a large climbing paplionaceous shrub, with handsome purple flowers in autumn. The root is shaped like a turnip, and is much cultivated in Kwangtung, where it

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is known as "fan ko" (*i.e.*, foreign "ko").[*] It is only slightly cultivated in Formosa, but in the wild established state it is common enough.

Pithecolobium dulce, the *Chin Kuei* or golden beetle tree, occurs at T'aiwanfoo.

Hyptis suaveolens, a herb with blue flowers, everywhere amidst grass in the hills, is highly scented.

Hyptis capitata, another herb, liking moist places, with white flowers in a head, is naturalized in Formosa, but, unlike the last species, it has not been met with on the mainland.

The castor-oil plant (*Ricinus communis*) and *Euphorbia Tirucalli* are supposed to be African in origin. Both are quite established. The last is a practically leafless shrub, with dark green boughs filled with an acrid milky juice. Its mode of propagation is puzzling. So far as I have seen the majority of the shrubs bear flowers, which are always female, and do not come to fruit. I have never seen fruit or staminate flowers, and I believe such are unknown in herbaria. Branches, then, with staminate flowers, or with fruit, lopped off and put into spirits by any lucky observer, should be sent to Kew.

A comparison of the floras of Takow and Hong Kong, both in much the same latitude, and only separated by some 300 miles of shallow sea, brings out a striking unlikeness. I may adduce a single instance. Two mangroves occur on the shores of the Takow lagoon—*Rhizophora mucronata*, the common mangrove, and *Brugiera cylindrica;* the first has yellow, the latter red flowers. These do not occur in Hong Kong, but are replaced by two species belonging to quite different genera. If we compare with Hong Kong, and its peak of 1,600 feet elevation, an equal area about Takow, including Apes Hill, of 1,100 feet elevation, it will be found that the latter area has only about half as many species, while endemic species are much more numerous in Hong Kong.

* * * * * *

The plants met with on the sea shore, and not occurring inland are (about Takow) the following:—

The mangroves and *Jatropha Curcas*, *Avicennia officinalis*, sometimes called the white mangrove, from the colour of the bark. It occurs in the swamps, belongs to *Verbenaceæ*, and has yellow flowers and curious fleshy fruit.

Excœcaria Agallocha, known as the "hsiang shu" (fragrant tree). It occurs on the shores of the lagoon. In old trees the wood of the trunk near the ground often becomes transformed in part, changing in colour from white to reddish black. These bits of probably diseased wood burn readily, with a slight odour, and are used locally as a substitute for the true *Garoo* wood, which occurs in Hainan, and is supposed to be the product of a different tree, *Aquildaria Agallocha* or *A. malaccensis*.

Pongamia glabra, a leguminous tree on Takow spit.

Terminalia Catappa, a tree with large oval leaves, occurring in the same locality.

Tournefortia sarmentosa, a common climber, with white cymose flowers and white fruit.

An allied species, *T. argentea*, with very thick, velvety, silvery leaves, occurs as a small tree at South Cape.

Ipomœa biloba, a common creeper in the sand, with bifid leaves and bright purple flowers.

Vitex trifolia, common creeper with small blue flowers. I have never seen it but in its unifoliolate variety.

Canavalia obtusifolia, a large climbing paplionaceous shrub, with beautiful red flowers, and large broad thick pods.

Vigna lutea, similar, but with pale yellow smaller flowers, and narrow round pods.

Vinca rosea, periwinkle, is naturalized on Takow spit.

Lumnitzera racemosa, a low shrub with white flowers, occurring in the mangrove swamps.

Euphorbia Atoto, a sea-sand spurge.

Tribulus terrestris, with yellow flowers and spiny fruit, prostrate in sandy places.

Pemphis acidula, a low shrub with white flowers, occurring on wave-washed rocks.

Spinifex squarrosus, a dioecious grass.

A *Sedum* with yellow flowers on sea-side rocks.

Scævola Kœnigii, a shrub.

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The common large trees in the neighbourhood of Takow are:—

Mangifera indica, the mango, wild and cultivated.

Buchanania arborescens, a tree akin to the mango in foliage and inflorescence, but with small inedible fruit, known as the "shan shuai."

Nephelium longana, the lung-an, wild and cultivated. Lung-ans are a staple export.

Ficus retusa is the common banyan tree here.

Ficus wightiana, a less common banyan tree, is readily distinguished by the inflorescence occurring on the leafless part of the boughs.

Ficus beecheyana, occurs as small shrub and tree of 20 feet or more in height; large pubescent leaves.

Ficus leucantatoma, also variable in stature, with large glossy leaves and flattened globular inflorescence.

Broussonetia papyrifera, the paper mulberry, not utilized in Formosa.

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[*] The native "ko," also a large woody climber with paplionaceous purple flowers, is common wild in China, Japan, and Formosa. It is *Pueraria thunbergiana*. From the root, which chipped, is used as a drug, a kind of arrowroot is produced, while the fibre of the stems is made into cloth, especially at Kiukiang, in Corea, &c.; but the plant, which occurs in the Formosan mountains, is not utilized here in any way.

Erythrina indica, a thorny tree, with large trifoliolate leaves and magnificent red paplionaceous flowers, known as the "tz'u t'ung."

Macaranga Tanarius, with large peltate leaves, known as the "hsieh t'ung."

Bischofia javanica, with trifoliolate leaves, known as the "ka-tang" (in the local dialect). The wood is good, and used for making furniture.

Melia Azedarach, the pride of India, "k'u-lien."

Neither the common *Loquat* nor the rare Hong Kong species occurs in Formosa, but a very large, and perhaps new, species of *Eriobotrya* occurs near Takow and at the South Cape. The fruit is smaller than the mainland *Loquat*, and has little flavour.

An ash (*Fraxinus* sp.) occurs rarely about Apes Hill, but it is common in the mountains.

The wood-oil tree (*Aleurites cordata*) was found by Mr. Playfair on Apes Hill, but it is very rare, and no commercial use is made of its product in Formosa.

Cordia Myxa produces a viscid fruit, eaten by the natives with soy and garlic, and named "p'o-tzŭ."

The Vegetable Tallow Tree Sapium sebiferum.—The fruit is not utilized in Formosa.

Sapindus Mukorossi, common on the cliffs as a shrub, is occasionally seen as a large tree. The fruits are not so much used here in lieu of soap, as they are in many places on the mainland.

Bombax malabaricum, the silk-cotton or "moc-main" tree, known to the natives as "pun-chi," is a thorny tree with red tulip-like flowers and large capsules, containing the silk-cotton. It is not collected in Formosa.

Amongst smaller trees worthy of notice are the following:—

Laportea pterostigma, a tree of the nettle family, with large leaves which sting violently.

Ehretia formosana, the "houk'o" or "thick bark." has hard wood, which, however, splits on drying.

E. macrophylla and *E. acuminata* also occur.

Pittosporum sp. nova, the "Kiehjiu," is very common, and has hard wood.

Mallotus cochinchinensis, *M. Playfairii*, and *M. Philippinensis* are small trees or shrubs, while *M. repandus* has a somewhat climbing habit.

Hibiscus tiliaceus grows to be a fair-sized tree. Its bright sulphur yellow flowers change as the day advances to a dark maroon colour.

H. mutabilis, smaller, has white flowers changing to pink towards evening.

Murraya exotica, the "shih-ling," is a small tree with white fragrant-white flowers, easily seen to belong to the orange family.

Leea sambucina, a beautiful shrub or small tree, with large much-divided compound leaves and a mass of red inflorescence, the individual flowers as they open being pale yellow. This tree belongs to the vine family, from which it differs so markedly in habit.

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Cæsalpinia, which is wrongly styled "acacia" by some Europeans in China, is represented by three species:—

C. pulcherrima, an erect shrub with gaudy red flowers, much cultivated. I have seen no wild specimens.

C. Nuga, a large thorny climbing shrub, with masses of bright yellow flowers and smooth short broad pods.

C. Bonducella, also a large thorny climber, with inconspicuous yellow flowers and spiny broad pods.

Two other common leguminous climbers on Apes Hill are:—

Millettia reticulata, with purple flowers.

Bauhinia Championi, readily distinguished by the characteristic bifid leaf of the genus and long racemes of white flowers in September.

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Ginger (*Zingiber officinale*) and turmeric (*Curcuma longa*) are cultivated, the latter being a large export from Anping. *Canna indica* is a common cultivated flower. Two species of wild *Zingiber* occur in the Bankimsing Mountains, and a very conspicuous *Alpinia* with beautiful flowers is everywhere common. It is *A. nutans*. Mats are occasionally made of the leaves.

A tall and graceful plant with white flowers in July occurs on Apes Hill and in the bamboo groves on the plain. It is *Costus speciosus*.

The *Arum* family is doubtless well represented in the mountains, but satisfactory specimens for the herbarium are difficult to prepare, and so my native collectors have shirked them. Mr. Morse sent me an *Arisæma* from Tamsui. On Apes Hill and at the South Cape *Alocasia macrorhiza*, with large white flowers and leaves sometimes 3 feet in breadth, is common, and has been carried into cultivation as an ornament of European houses on the mainland.

A new species of *Amorphophallus* is met with on Apes Hill, distinguished by its tuber, like a large potato, which puts forth a single flowering stalk, expanded above into a hollow organ, covered with bristles, dull red or purple in colour, and a gruesome sight. In the following year the tuber sends up a stem bearing three much-divided leaves. A still larger species of this genus, with a tuber 8 or 9 inches in diameter, occurs in the Kalee Mountains. An enormous climber ascending to the summits of the loftiest trees occurs in the mountains, both in the south and at Tamsui, and there are two or three examples of it near the Laiwee village close to Takow. This is *Epipremnum mirabile*, the Tonga plant, with large leaves indented and loopholed. This plant is said to be a specific for neuralgia.

Pothos Seemani is a common climber on cliff walls.

The most common palm is *Phœnix humilis*, which occasionally attains 10 feet in height. It bears small edible fruit of the same flavour as the date. It is known here as the "Kuang lang," the name in Kuangtung Province of the tall palm, *Caryota ochlandra*, which produces the coir of South China. A very graceful species of *Arenga* or "sago palm" (*A. Engleri*) is common at Tamsui and on Apes Hill, Takow, and is widely spread in the mountains. It has been introduced into the Hong Kong Botanic Garden by Mr. Ford. It bears a small quantity of coir, and is therefore styled "tsung" by Formosans, which is the name given in Central China to *Trachycarpus excelsa*, generally known as "Chamaerops," the palm which produces the coir of Central China. The *Areca* palm is cultivated on the plain, and I have specimens of a species of *Trachycarpus* from savage territory.

Around Takow there are two species of bamboo very common, the "chi tik" or thorny bamboo, much used for fences, and the "lik tik," which has broad leaves. This occurs wild, and is also much planted for its excellent bamboo shoots. I have obtained flowering specimens of the latter, so that it can be identified, but have failed to obtain flowering specimens of the former, and also of the very large bamboo, "mao-chu" (hairy bamboo), which is used in making the sea-going catamarans. Specimens of bamboos showing both foliage and inflorescence are very valuable, and the special attention of travellers is directed to obtaining and sending them to Kew for identification. Most bamboos only flower when they have attained a mature age, flower once only and die. Two species of reed are common. *Ischæmum angustifolum* occurs on the sea-face of Apes Hill, and is a grass peculiar in the fluffy nature of the base, out of which the culms spring. It is the "Bhabur grass" of India, where it is used as a good material for making paper.

The sugar-cane, *Saccharum Officinarum*, is much cultivated, and at least three varieties occur, only one of which I have been able to obtain in flower. The cereals include rice, of which five varieties of the common kind are noticed in the Paris Exhibition catalogue. In addition, glutinous rice occurs, and two peculiar kinds, red rice and black rice, which I have not been able to investigate. The black rice is very dear, being used as a medicine, made into an infusion like tea. Wheat is cultivated as far south as the South Cape. Barley occurs in the centre of the island. Maize, common sorghum (*Sorghum vulgare*), and some kinds of millet (*Setaria*) are met with, but to no great extent. Job's tears (*Coix Lacryma-Jobi*), which is always erroneously styled "pearl barley" by Europeans in China, also occurs. It may be noted that *Sorghum saccharatum*, which is cultivated in the Yangtzu Valley is *not* used by the Chinese for making sugar. This plant is now cultivated largely for that purpose in the United States, where it is sometimes known as the "Chinese sugar-cane," a misleading term.

Cyperaceæ are numerous in species. "Kiam tsʻao," *i.e.*, salt grass, occurs in brackish water, and the stems are much used for tying parcels and for making coarse mats. It is a species of *Cyperus*, but it is not the plant out of which the famous Taika mats are made. The latter are exported from Tamsui, and vary in price from 2 dollars to as much as 70 dollars each. They are used by the Chinese for sleeping on in summer, and occur in sizes suitable for that purpose. The dearest kinds are fine, even in texture, and with patterns, and can be rolled up into small compass; and one costing 70 dollars, such as might be made for the Governor or the Palace, may take three years in making. The plant is reported to occur only in cultivation, and to be confined to the neighbourhood of Taika, on the north-west coast. I have been informed that it is sown from seed, and lasts for several years, being cut down thrice a-year. The fields are said to be kept irrigated with fresh water like rice fields. I am unaware that any foreigner has observed the mode of cultivation of the plant or the manufacture of the mats; the plant is unknown. There is here room for an interestering investigation, and I suggest that specimens of the plant in flower, with seed for sowing and details of cultivation and manufacture, be sent to Kew by the first traveller in the locality. The naming of *Cyperaceæ*, to which order the plant probably belongs, is difficult, and can only be done satisfactorily at some such establishment as Kew, where there are copious specimens to compare with. I may here mention that the naming of a new plant or the selection out of two or more names of the correct one in the case of a known plant is subject to definite rules, the chief of which is, that a name to be valid must have been accompanied at the time of bestowal with a sufficient description of the plant. When two or more such names happen to be given independently, then the prior name is the correct one, the spelling of the first name must be rigidly adhered to, and if descriptive in character it cannot be altered even when erroneous. We are not then at liberty, *e.g.*, to alter *Chinensis* into *Sinensis*, or *vice versâ*; and we cannot change *Japonica*, even if, as is the case with some plants so called, the plant is not really a native of Japan.

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Economic Botany.

Some of the plants useful to man or cultivated in Formosa have been incidentally mentioned in the preceding sketch; but I shall now confine myself in the remaining part of this paper to plants of economic importance.

The edible *Leguminosæ* are the same as on the mainland. The garden pea (*Pisum sativum*), the Soja bean (*Soja hispida*), *Lablab vulgaris*, and several species of *Phaseolus*. The two following members of the order are worthy of note:—

Sesbania ægyptiaca, known as "Shan chʻing" (*i.e.*, wild indigo), is a slender shrub with yellow flowers and very long slender pods. It is planted chiefly as a help to the soil, being ploughed in when the stems are a foot or so high. Left to grow, it attains 5 or 6 feet, and is only useful as fuel.

Cajanus indicus, a tall shrub, known as the "Shu-dou" (tree-bean), is cultivated for the seeds, which are ground into flour and used for making cakes. The Fukien name of this plant is hiang Dou."

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The following oil-producing trees and shrubs, but which are not utilized in Formosa, have been incidentally mentioned:—*Jatropha Curcas, Aleurites cordata, Ricinus communis;* and to this class may be added the varnish tree and vegetable tallow tree. Paper might be made out of *Broussonetia papyrifera*, and also out of a species of *Wickstrœmia*, which is common in Formosa, but unutilized; paper from it is a Pakhoi export. One of the most interesting Formosan products is the pith of *Fatsia papyrifera*, commonly known to Europeans as the "rice paper" plant. I can add nothing here to what is already known on the subject, but may mention that the plant also occurs in Ssü-ch‘uan, and there is a considerable export of "pith" from Ichang and Hankow. I did not see the plant wild in Hupeh or Ssü-ch‘uan.

Ordinary or laurel camphor I leave unnoticed, as I have not been to the districts of production.

A peculiar kind of camphor, of great value in the eyes of the Chinese, is distilled in Hainan from the leaves of *Blumea balsamifera*, a shrubby plant about 2 or 3 feet in height, belonging to *Compositæ*. This may be distinguished as "Ai" camphor, from the Chinese name of the product:—Ai-fen, the crude state; Ai-p‘ien, the purified form. The plant does not occur on the Chinese mainland, but is common enough in India, Burmah, and Formosa. The Rev. W. Gilman, of the American Mission at Kiungchow, has sent me an account of the Hainan method of distillation, which I hope to see soon in the "Kew Bulletin." This plant is worthy of attention from a commercial point of view.

There are three chief fibre-yielding plants in cultivation:—

1. *Boehmeria nivea*, known locally as "t‘oë," the "ch‘o" of Pekingese, the nettle-hemp, yielding China grass fibre. Lately in the Customs Returns for Tainan it has been distinguished by the last name, but formerly it had here (and in other ports still has) only the general name "hemp," which in China includes several different fibres. Formosan "rhea fibre" is worth from 11 dollars to 20 dollars a picul (133⅓ lbs.), and is made into a particular kind of grass-cloth at Swatow.

2. Pineapple, the fibre of which in the local dialect is known as "ong-lai-ssü," and is worth about 24 dollars a picul. It is exported to Swatow, where it is made into the kind of grass-cloth distinguished as "ong-lai-ko."

3. Jute (*Corchorus capsularis*), the fibre of which is known to Europeans in China as "hemp skin," a too literal translation of the Chinese "Ma-p‘i." "Ma" is generic for textile fibres, "p‘i" is "bark," referring to the outer bark of the plant, which is stripped off in long ribbons. Owing to the different preparation of the plant in China and in India the products look very different. The so-called "hemp bags" of Customs Returns are made out of this coarse Chinese jute, which is also used for making rope and string of inferior quality. The jute is worth from 2 to 4 dollars a picul.

Corchorus olitorius, an allied species, which is readily distinguished by its long narrow fruit, that of *C. capsularis* being globular, occurs in Formosa as a weed, and I have not ascertained that its fibre is ever used.

It may be here noted that the so-called Tien-tsin jute is the product of *Abutilon Avicennæ*, and should be named "Abutilon hemp." I have seen true or Russian hemp, the product of *Cannabis sativa*, the "huo-ma" of the Chinese, from Newchwang, but this plant is more cultivated in China for the oil from the seeds than for the fibre; and of flax (*Linum usitatissimum*), which is cultivated in North-western China, the same may be said. Occasionally small quantities of a fabric named "shan-hsi ma pu," are brought to Tien-tsin, and this is doubtless linen, but I have seen no specimen, and merely infer from the name. The fabric has been described to me as a kind of grass cloth.

Flax is "hu-ma," and the seeds are for sale in drug shops.

"Savage cloth" is a term applied to at least three different kinds of coarse unbleached fabrics made by the savages. The kind made near Tamsui is of China grass but whether from wild or cultivated plants of *Bœhmeria nivea* I am not certain. The wild plant is very common, and has a coarser fibre. In the Kalee Mountains "savage cloth" is made out of the inner bark of the roots of small wild mulberry trees, doubtless a variety of the very variable *Morus alba.* I have sent specimens of plant, root, fibre, and cloth to the Kew Museum. Game-bags ("bang-teh"), very serviceable, are also made out of this fibre by the savages, while similar ones are made out of China grass by the Chinese and Pepohuan. A third kind of "savage cloth" is made from the inner bark of *Sterculia platanifolia,* known in Formosa as the "ch‘ing-t‘ung" tree. I have not been able to get specimens of either fibre or cloth in Formosa, but specimens of fibre, and shoes made out of it, from Hupeh, have been sent by me to Kew. This tree has been utilized for its fibre from classical times, but the product is coarse, and only suitable for making shoes, ropes, &c.

Mr. Hosie mentions a fourth kind of "savage cloth," made out of banana fibre, but there is no certain information to hand about this.

"Dye yam," the large and dark red tuber of *Dioscorea rhipogonoides, Oliver*, a wild yam occurring in the southern mountains of Formosa. These tubers are locally used by the fishermen for dyeing and tanning their nets reddish brown; occasionally also their clothes are dyed similarly. The tubers are cut up into small pieces and put into large vats of water placed on a fire; the resulting red decoction is the dyeing liquid. The plant occurs in Hong Kong, and was first collected by Mr. Ford, who afterwards, on his trip up the West River, ascertained that the tubers so much used in the Kwang Tung Province were the product of this plant. It occurs also wild in Kwang-hsi and Tonquin, and enormous quantities are sent from the French Colony into China by way of Lungchow. The French call the tubers *faux Gambier*, but they are generally known in Customs Returns as "dye root," or "dye yam," "shu-lang" being the Chinese name. In addition to their use for dyeing nets, the Cantonese employ them for giving a peculiar gloss to certain cotton goods. Specimens have been sent to Kew and to the Pharmaceutical Museum, and it found to be of value in Europe as a dyeing or tanning material, doubtless large quantities could be exported from South Formosa, where the present price is about 2 dollars a picul. ("Kew Bulletin," 1895, p. 230.)

"Ok-gue," the dried fruit of *Ficus pumila*, a common shrub, climbing over rocks; yields a peculiar jelly when treated with water, and is a common article of consumption amongst the Chinese in summer. It might be of value in the home market.

Very curious fans are made in Taiwanfoo out of the leaf of the "Areca" palm, which is planted considerably in South Formosa.

In the preceding notes I have not touched on many well-known local products, as ground nuts (*Arachis hypogœa*) and sesamum seed, both of which are considerable sources of oil.

Formosa is rich in fruits, of which pine-apples and "lung-ans" are the chief from a commercial point of view. Oranges, pumeloes, carambolas, pears, rose-apples, guavas, papaws, cocoa-nuts, sweet sops, bananas, &c., are also produced in quantity.

Tamsui exports certain kinds of seaweed (identified at Kew as *Suhria prestoides*, J. Ag. and *Gelidium Amansii*, Lamx), tea, rattans (from an undetermined species of *Calamus*), tobacco.

"Medicines" is generally an interesting heading amongst exports from a Chinese port, but scarcely any, if one excludes camphor and turmeric, are exported from Tamsui or Tainan. "Sang-bai-p'i," the bark of the mulberry, and "mu-hu," a species of *Dendrobium*, occasionally are sent from Formosa.

"Capoor cutchery" and ginger are cultivated for local use, and in the Kalee Mountains a species of *Cinnamomum* occurs, different from *C. Cassia*, which the natives use in lieu of the true cassia bark.

Timber, when the mountainous country inhabited by the savages is opened up, will doubtless be an important article. I have already mentioned the common trees of the plain, most of which occur in larger size and greater number in the mountains, and I will now make a note of a few of the timber trees, which practically only occur in the mountain forests, reserving for a future occasion a discussion on the great number which have been collected by my natives. Very few species of conifers are known as yet from the island, but doubtless when higher altitudes than 3,000 feet have been explored, more kinds will be found, if one can judge from the mountains of Japan and Central China.

Podocarpus Nageia, furnishing an excellent wood, has been sent me from Tamsui by Mr. Morse. The Chinese call it "Shan-Sha." An allied species occurs at the South Cape. Mr. Morse also sent me *Cunninghamia sinensis*, the "Sha" tree of the mainland, so much used for making tea chests; but I am not certain that the specimen was indigenous. This tree is common in the mountains of South and Central China, and is often dubbed *Araucaria* by the non-botanical traveller. *Thuja orientalis* also occurs.

Oaks are abundant in species in the southern mountains. They all yield hard wood, and all have persistent leaves, and are possibly new species. At Tamsui an *Alnus* occurs; and at Takow, on the creek banks, a *Salix* is common.

Lauraceæ are numerous in species in the mountains; there are several species of *Machilus* with excellent wood. One of the local "Lam-A" wood ("Nan Mu" of Mandarin speech) is much used for making furniture, &c. The "Siao Lam" is another species. Camphor wood of course is common and excellent, *Ebenaceæ* are abundant. *Diospyros Kaki*, "the persimmon," is cultivated for its fruit. Another species occurs as a small tree on Apes Hill, while at the South Cape a third species, with large hairy fruit, is common; but the source of the ebony ("O-Ma-Ts'a"), which is highly valuable, and common in the southern mountains, is not yet satisfactorily made out.

Maples are scarce, perhaps three or four species in all. *Styrax, Symplocos, Eugenia,* and *Calophyllum,* and numerous other genera with excellent wood are well represented in the mountains.

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APPENDIX (C).

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Williams. "Middle Kingdom." (Vol. ii, p. 554, 555, 716, 718, and *passim.*)

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"*Flight of the Lapwing.*" Chaps. II, IX, XII, XIII; which also contains a very fair map, better than some more recent ones.

Note.—I am allowed to say that I have also had the privilege of referring to MS. notes of journeys in the island by three gentlemen well known in South Formosa, in addition to the above-named works. I have also obtained orally and independently a considerable amount of information from these three and several other sources.

APPENDIX (D).

COMPARATIVE Table of Numerals, and some words in the Dialects of the Aborigines of South Formosa.

Numerals, &c., in English.	Pilam Amis.	South Cape Amis.	Paiwan Tribe.	Amis anciently.	Malay.
1	Chi-sai	Ika	Ita	Anai	Satu.
2	Too-sah	Oko	Nusah	Tong	Dua.
3	Tu-lu	Tapar	Tulu	Soy	Tiga.
4	Li-pat	Rou-ah	Li-pat	Ta-ah	Am-pat.
5	Lima	Kaid	Lima	Sia	Lima.
6	Unum	Su-liu	Unum	Sa	Anum.
7	Pi-tu	Mia	Pita	Oko	Tugu.
8	Va-ro	Ratu	Valu	Ata	Lapan.
9	Shi-va	Koris	Siva	Aho	Simbalan.
10	Pu-kul	Sa-pong	Pulo	Tu	Spulo.
House	..	Rooma	Tapao	..	Rooma.
Moon	..	Voolan	Voolai	..	Boolan.
Rain	..	Ujal	Kumudjal	..	Ujan.
Pig	..	Vavi	Vavi	..	Babi.

Vowel sounds:—*a*, as in man; *i*, as in French letter *i*; *ai*, as in *y* in my.

Also following words in the Pilam dialect:—

Arm	Karm.	Foot	Laripat.
Mouth	Gnous.	Tobacco	Tambacco.
Head	Vumo.	Sun	Chilia.

Dollar .. .. .. Pesa.

COMMERCIAL. No. 1 (1896).

REPORT on Formosa, by Mr. N. Perkins, Assistant in Her Majesty's Consular Service.

[In continuation of "Commercial No. 11 (1893)": C.—7104.]

Presented to both Houses of Parliament by Command of Her Majesty. February 1896.

LONDON:
PRINTED BY HARRISON AND SONS.